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Master Thesis International Development Studies

Changing Food Practices:

Exploring the Dynamics of Social Practices for Sustainable Food Innovations in
Cotonou's Food System Lab

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ABSTRACT

The current food system fails to ensure food security and nutrition for millions. In Benin, 83% of households cannot afford a nutritious diet, and only 18% are food secure. In response, pathways towards more sustainable food systems are emerging, including Living Labs (LLs). They are defined as user-centered, open innovation ecosystems integrating research and innovation within real-life communities. Yet, little research has examined the impact of the innovation developed within LLs on expected beneficiaries. This study addresses this gap by analyzing beneficiaries' ability to adopt the food innovations promoted by the LL of Healthy Food Africa (HFA) in Abomey-Calavi, Benin. HFA tackles Benin's prominent issue of food insecurity and malnutrition by improving households' food consumption practices. Embedded in the framework of social practice theory (SPT), this study focuses on how changes in social practices—materials, competencies, and meanings—can enable sustainable and healthier food habits at home. Through semi-structured interviews and participant observations, this qualitative study explores: “What elements of social practice need to change to respond to the introduction of an innovation in creating more sustainable food practices at a household level?” The findings provide insights for both academia and development, offering recommendations for innovations tailored to people's capabilities and willingness to embrace change. This research serves as a pilot study for the Incubator project “From Lab to Mouth: Enhancing the capacities of households to adopt innovations from living labs in the food sector across Africa”, which is part of the Pathways to Sustainability Incubator grant (2024).



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LIST OF ABBREVIATIONS

Abbreviations	Definition
FNS	Food and Nutrition Security
FSLs	Food System Labs
HFA	Healthy Food Africa
LLs	Living Labs
PNASI	Le Programme National d’alimentation Scolaire Intégré (school meals program)
SPT	Social Practice Theory
TTR	Transformative Transdisciplinary Research
WFP	World Food Program

CHAPTER 1: INTRODUCTION

The current food system is undisputedly flawed, as it has failed to meet the needs of millions in terms of food security and nutrition. It has been criticized for its negative outcomes on the environment and human health, and the deterioration of natural resources (Rockström et al., 2020; World Health Organization, 2020). In 2019, 673 million (8.8%) of the global population were undernourished, and 194.4 million (9.2%) experienced severe food insecurity (World Health Organization, 2020). These numbers will grow in the near future as the world population is estimated to reach 8.6 billion by 2030, and 9.8 billion by 2050 (United Nations, n.d.). Another expected growing trend is urbanization. In 2018, 55% of the global population lived in cities and estimated to reach 68% by 2050 (United Nations Department of Economic and Social Affairs, 2018). The takeaway from these figures is that as urban population grow, food insecurity will become an increasingly significant issue if the current food system persists. Benin, the subject of this thesis, is particularly affected by these issues, with only 18% of the population being food secure (HealthyFoodAfrica, 2020). Moreover, Benin's population is rapidly growing, from 12,12 million people in 2020 to an estimated 30 million in 2030, with 48% of the population living in urban areas (FAO, 2023).

At the current rate of resource consumption, exploitation and waste, the food system will not be able to meet the demands of the world's growing population. Consequently, numerous voices have united in proclaiming the necessity to move away from the global food system towards a more just and sustainable one. The shift is advocated at the international level with the Sustainable Developmental Goal of reaching zero hunger by 2030 and at the regional and local level, where initiatives for food systems transformation have been multiplying with a tendency to encourage more sovereign and localized food production. These alternatives include agroecology, crop diversification, shortening of the food chains, and participative decision-making (Viera & Howes, 2020). Many scholars and organizations (Bruce & Bruce2022, Pereira et al. 2020, Kropp et al. 2021, Schut et al., 2022, Potters et al., 2022) have examined the prominent role of innovations in disrupting the current food system to establish new sustainable pathways and ensure food security and nutrition (FSN). Living labs (LLs) are seen as promising spaces to develop innovations. They are defined as: “user-centred, open innovation ecosystems based on a systematic user co-creation approach, integrating research and innovation processes in real life communities and settings” (European Network of Living Labs website in Gamache et al, 2020, p.93). In other words, LLs offer a space for people to reconnect with the decision-making process of food production and consumption, challenge and create alternatives to the current governance of the global food system. Moreover, LLs represent platforms that strengthen citizen engagement, facilitating agency towards reshaping food systems (Trivellas et al. 2023; Brons et al.,2022). Thus, a primary goal of the food system transition is to restore consumers' control over food production and consumption. In essence, the sustainable transition of food systems interconnects with many aspects of LLs.

1.2 RESEARCH GAP

While innovations tackling food insecurity and malnutrition are emerging, there remains a significant need to assess their impact on food security. Rohr et al. (2021) emphasize that “food security considerations have not yet widely penetrated environmental impact assessment practice”(p.1). Impact assessment ensures that innovations contribute to food security and sustainable food systems. By analyzing the impacts of these innovations, stakeholders can identify both their benefits and drawbacks and adapt future innovations accordingly. Since LLs test innovations in real-life settings, they provide a model for broader implementation, which facilitates the scaling up of successful innovations (Leminen et al., 2012, p.12). Therefore, more rigorous impact assessments are needed to ensure that the innovations developed FSLs truly contribute to sustainable food system transformation and respond to beneficiaries’ needs.

Despite the recognized potential of living labs to foster food system transformation, existing studies on the topic focus either on the drivers leading to change or the benefits of participating in living labs. Consequently, there is a knowledge gap in the literature on living labs and innovations, as it fails to investigate the impacts of the innovations created in living labs on expected beneficiaries and falls short in evaluating whether people have the capabilities to utilize innovations.

1.3 RESEARCH OBJECTIVE AND RESEARCH QUESTION

Using semi-structured interviews and participant observations, this thesis examines if and how innovations can be adopted and accepted among people. Specifically, the objective is to understand how social practices can change to enable the adoption of sustainable and healthier food habits in the household. With respect to this objective, the main research question of this thesis is as follows:

What elements of social practice (material, competencies, meaning) need to change to respond to the introduction of an innovation in creating more sustainable food practices at a household level?

Achieving more sustainable food practices at the household level requires changes in social practices with respect to the materials, the competencies and the meanings associated with these practices.

1.4 ACADEMIC AND DEVELOPMENT RELEVANCE

This thesis aims to contribute to the aforementioned knowledge gap by investigating the trickle-down effects of innovations. Therefore, the relevance of this research is two-fold. First, its academic relevance is to provide additional insight into the changes brought by these innovations on the expected beneficiaries. It will expand the knowledge of the literature on innovations and LLs by examining the factors that impede or enable the expected beneficiaries to utilize innovations. Secondly, in regard to development, this research aims to provide recommendations to practitioners on the creation of innovation tailored to people’s

capabilities and willingness to accept change. It follows the impacts of food innovative practices developed by Healthy Food Africa (HFA). HFA is a research and innovation project working towards the creation of more sustainable food systems in 10 African cities, including Cotonou in Benin which will be the case study of this research as highlighted in the geographical framework (Chapter 4) (Homepage HFA, 2022).

1.5 THESIS OVERVIEW

The first part of this thesis (Chapter 2) presents the theoretical framework and conceptual model, which will explain the main theory and the concepts guiding this research. The third chapter provides a brief overview of the local context in which the data was collected. The fourth chapter presents the methodology of the research. The last two chapters (5 and 6) outline the findings, followed by a discussion that analyses the results based on the literature and the theoretical framework introduced in Chapter 2. The thesis concludes by answering the research questions.

CHAPTER 2: THEORETICAL FRAMEWORK

2.1 THEORETICAL FRAMEWORK

This research explores changes in social practices needed for adopting sustainable and healthier food consumption habits. It examines not only behaviour change but also the broader societal and cultural contexts that influence and are influenced by individuals' perceptions and practices. This is why Social Practice Theory (SPT) will be the main theory guiding this study. Numerous scholars have sought to develop SPT, namely Giddens (1984) and Bourdieu (1977, 1990). The theory emerged as a response to the dualistic nature of micro and macro theories that either put rationality (individual behaviour) or structure at the center of their analysis. Conversely, SPT looks at the interaction between individuals' agency and the social structure in which they are embedded. Practices, the everyday actions of individuals, lie at the intersection between structure and agency. According to the founders of SPT, practices reinforce existing norms and thus social structures, which in turn influence social practices. Utilizing SPT implies examining practices as an "assemblage" of meanings, competencies, and materials (Hargreaves, 2011, p.83; Pouliot, 2012; Reckwitz, 2002). Meanings refer to the images and symbols that individuals (agents) attribute to their practices, competencies refer to the skills and knowledge required to accomplish a social practice, and materials are the objects needed to accomplish a social practice (Pouliot, 2012).

For the purpose of this research, recent scholars such as Shove (2010) and Warde (2005) provide more pertinent references. The former has made use of SPT to highlight the problem of "social change embedded in contemporary environmental policy" (p.1273), and the latter has applied the notion of SPT to the study of consumption practices. Warde (2005) emphasizes that consumption practices are accomplished in

different ways according to the specific individual enacting them and the specific situation in which they are practiced. Warde's work is particularly relevant to this research because the mission of the food system lab in Cotonou focuses on influencing food consumption practices. As for Shove, she examines structural barriers to social change, providing tools to analyze social practices both within households and in a broader socio-political and cultural context. Adopting Shove's focus on external influences is crucial also for understanding how the introduction of an innovation, as an external factor, influences social practices. Additionally, SPT offers a "holistic conceptualization" and "de-centre individuals from analyses" as well as looking at the "ongoing struggles that develop across activities" (Hargreaves, 2011, p.79, 80; Holland & Lave, 2019, p.5). With all this in mind, SPT is the most relevant framework to use for this research.

It is important to acknowledge that SPT, as all theories, also contains limitations. One significant critique highlighted by Maller (2015) is SPT's tendency to prioritize the stability of practices, with an emphasis on their routine aspects. This focus makes it difficult to account for how people change their behaviours in response to new innovations (Maller, 2015, p.59). Shove (2010) explains that, unlike theories of behavioral change, earlier versions of SPT saw people as "carriers of practices" rather than independent agents (p.1280). As a result, Shove argues that SPT struggles to account for how practices are also shaped by external factors like power dynamics or policies, and in the context of this thesis: innovations. On the other hand, Spaargaren (2011) argues that researchers should consider the active role individuals play in modifying their behaviours to offer a more comprehensive analysis on how practices might change and evolve. In other words, SPT should include "agency and subjectivity" when studying changes in practices (Spaargaren, 2011, p.815). These critiques highlight SPT's challenge in balancing the role of individual agency and structural factors, suggesting that the theory needs to better account for both in order to effectively study changes in practices. Another pitfall that Blue et al. (2016) highlight is the complexity and abstract nature of SPT which creates challenges when applying it to real-life contexts. For these scholars, the various elements such as meanings, competencies, and materials offer a comprehensive framework, yet difficult to translate into concrete landmarks for researchers on the field.

In response to these pitfalls, key concepts extracted from the literature on food system labs and innovations will compliment the theoretical framework.

2.2 KEY CONCEPTS

2.2.1 TRANSFORMATIVE TRANSDISCIPLINARY RESEARCH (TTR) AND CAPACITY BUILDING

Den Boer et al. (2021) underlie how food systems are complex systems as they consist of various actors, sectors, and governance levels. To account for these stakeholders, they call for transformative transdisciplinary research (TTR) to integrate collaboration among all actors. To encourage TTR practices,

Den Boer et al. (2021) argue that capacity building needs to be promoted for professionals working on food systems. However there is a shortcoming in their approach. While they criticize the traditional approach to innovation and stress the need for a change of attitude on the part of policymakers and academia, they direct their inquiry only to “experts” consisting of students and professionals (see Figure 1 for Den Boer et al’s focus on experts). To overcome this limitation, this concept will be tailored towards the expected beneficiaries of the FSL’s innovations. By doing so, it aims to challenge the dichotomy between active experts and passive recipients. This aligns with Gamache et al.’s (2020) argument that for LLs to be a pathway towards a healthier and a more sustainable food transition, they necessitate capacity-building of all participants, not just their involvement. Indeed, if people cannot benefit from innovations, the status quo cannot be challenged. Failure to investigate this topic further poses the risk of reproducing the dominant system by marginalizing certain societal groups. This research seeks to avoid such risks by investigating capacity-building from the beneficiaries’ point of view.

These concepts not only address the criticisms of SPT regarding agency and structural dynamics but also bridge the gap between theory and practice identified by Blue et al. (2016) by integrating insights from food system labs and innovations.

Figure 1 Key Questions Related to Capacity Building for Den Boer et al. (2021)

Table 1	
Key questions related to capacity building for food system transformation	
Key questions	Explanation
Who needs to acquire competences to contribute to food system transformation?	This question relates to future professionals (e.g. schoolchildren and (university) students) and current professionals (e.g. researchers, educators, policymakers, entrepreneurs and people working in industry, intermediary organisations, etc.).
What competences do these different actors need to acquire to contribute to food system transformation?	Although an increasing emphasis on sustainability competences can be observed, it is not yet clear who will need to acquire what competences in the context of food system transformation in particular and how this relates to profession and envisioned actor role.
How could we stimulate: 1. (Future) professionals to acquire those competences? 2. The implementation of reflexive transdisciplinary practices?	This question refers to the most promising strategies for doing the following: 1. Fostering competence development among (future) professionals; 2. Implementing reflexive transdisciplinary practices in educational settings (e.g. community service learning) and professional settings so that individuals can adopt the acquired competences in practice.

Source: Den Boer et al., 2021, p.120

2.2.2 AGENCY AND CO-SHAPING

Brons et al. (2022) point to the significance of perceiving citizens not as “passive or ignorant” but as “experts of their own daily lives to reshape the food future” (p.3). They emphasize the need to challenge the “dualistic vision of producers and consumers” and, to achieve that aim, they insist on the concept of agency through citizens engagement in co-shaping food systems, which is facilitated by urban LLs (Brons et al.,

2022, p.3). Furthermore, Gamache et al. (2020) put forward the notion of collective learning and co-shaping of projects, aiming towards more horizontal practices of project management and implementation.

These insights challenge the critiques of SPT's focus on routines by advocating for a more dynamic approach to understanding how practices evolve and adapt to innovations. In short, agency illuminates how individual choices and motivations influence the adoption of new food practices. While co-shaping engages various stakeholders, including community members, teachers, and practitioners in the development and implementation process of innovative food practices. This ensures that the practices are tailored to the local context and needs, which addresses SPT's criticism of lacking practical application.

2.2.3 FOOD NEOPHOBIA

The concept highlighted by Siegrist and Hartmann (2020), while not the main focus of the findings' analysis, remain pertinent to this thesis. They explore meanings (one key component of SPT) to examine how societal acceptance of innovations is influenced by norms and values. These authors argue that consumer acceptance needs to be present to allow for a successful introduction of innovations. With attention to the disruption of food habits, they examine food neophobia which is defined as “the tendency to reject unfamiliar foods” (Siegrist & Hartmann, 2020, p.345). This concept examines how cultural and individual norms and values influence the tendency to reject or accept the introduction of new food consumption practices. This aligns with Spaargaren's (2011) claim that subjectivity is central for a deeper understanding of how individuals either accept or reject a novel food practice.

2.2.4 INNOVATION READINESS

Schut et al. (2022) underline the concept of Innovation Readiness which refers to “the capacity of an innovation to fulfill its contribution to development outcomes in specific locations” (p.125). Equally important, their research highlights how different groups in society face disparities in accessing and benefitting from innovations. For instance, they stress the importance of looking at gender equity when evaluating the impact of innovations. This leads to the question of how innovations need to accommodate groups “that are at risk of being excluded”(Schut et al., 2022, 100). These concepts are useful in identifying the gaps and limitations in innovations and developmental projects (see Figure 2 for key definitions of Innovation Readiness). They address shortcomings in SPT by providing practical insights into how beneficiaries can effectively engage with new food practices. Further, they strengthen the theoretical analyses as they offer more concrete guidelines in understanding what might influence the adoption of practices.

Figure 2 Definitions for Innovation Readiness by Schut et al. (2020)

Box 1.2 Key Definitions for Innovation and Scaling

Innovations are the new ideas, products, services, and solutions capable of facilitating impact through innovation systems involving multiple partners and enablers.

Innovation systems are the interlinked sets of people, processes, assets, and social institutions that enable the introduction and scaling of new ideas, products, services, and solutions capable of facilitating impact.

Scaling of innovations is a deliberate and planned effort to enable the use of innovations to have positive impact for many people across broad geographies.

Impact is a durable change in the condition of people and their environment brought about by a chain of events to which research, innovations, and related activities have contributed.

Scaling strategy is a set of coherent activities, stakeholders, and stakeholder engagement models to enable scaling.

Innovation package is the combination of innovations that are needed for scaling in a specific location or context.

Scaling approach is an integrated set of scaling tools and procedures that can be used to design and implement scaling activities in different contexts.

Innovation readiness refers to the demonstrated capacity of an innovation to fulfill its contribution to development outcomes in specific locations. This is presented in nine stages showing progress from an untested idea to a fully mature proven innovation.

Innovation use indicates the level of use of the innovation or innovation package by the project members, partners, and society. This shows progressively broader levels of use beginning with the intervention team who develops the innovation to its widespread use by users who are completely unconnected with the team or their partners.

Scaling Readiness of an innovation is a function of innovation readiness and innovation use. Table 1.5 provides summary definitions for each level of readiness and use adapted from Sartas et al. (2020), which have been used throughout the book. Scaling Readiness also is the name of the approach to scaling described in Chap. 3.

Source: Thiele et al., 2020, p.16

2.3 CONCEPTUAL MODEL

The conceptual model integrates elements of the main theory (SPT) and the additional concepts to highlight the key variables and relationships that are essential to this research, as discussed in the theoretical framework. The conceptual model is as follows:

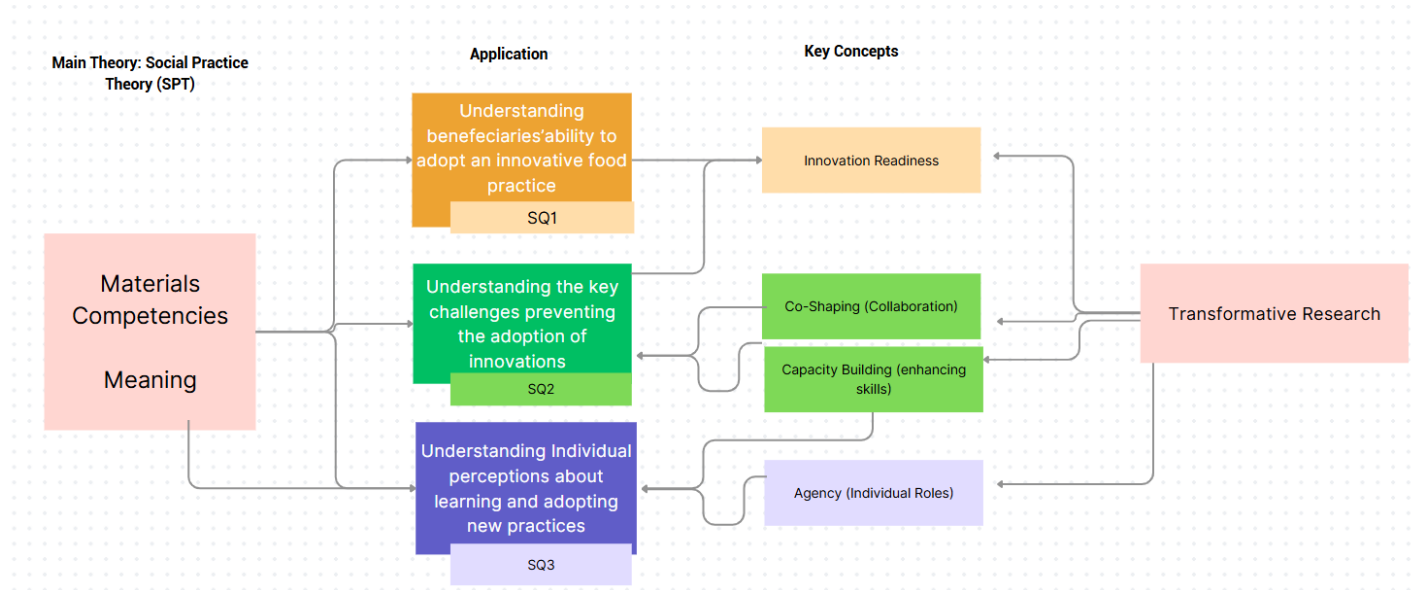


Figure 3 Conceptual Model

This model highlights the interrelations between the three components of SPT: materials, competencies, and meaning and their role in addressing the three sub-questions:

SQ1: To what degree are participants able to integrate innovative food practices into their daily routines, and what specific changes have they implemented in their food practices?

SQ2: What challenges do participants encounter when attempting to adopt new food practices, and how do these obstacles impact their ability to change?

SQ3: How do participants perceive and value the process of learning and adopting innovative food practices?

Understanding how participants can adopt innovative food practices (SQ1) and the challenges they face (SQ2) is key for assessing the success of an innovation. Co-shaping and capacity building are concepts that illustrate strategies for overcoming some of the barriers to the adoption of new practices. Additionally, capacity building and agency delve deeper into participants' opinions of new practices and on the innovation adoption process (SQ3). This aspect relates specifically to the third component of SPT: meaning. This framework is part of transformative research as it aims to provide practical findings and recommendations for improving beneficiaries' ability to adopt food innovative practices.

CHAPTER 3: GEOGRAPHICAL CONTEXT

This section will briefly describe Benin's socio-economic context before focusing on the country's governmental program on food security and nutrition and will conclude with the presentation of Healthy Food Africa (HFA), and more precisely, the Food System Lab (FSL) in Cotonou.

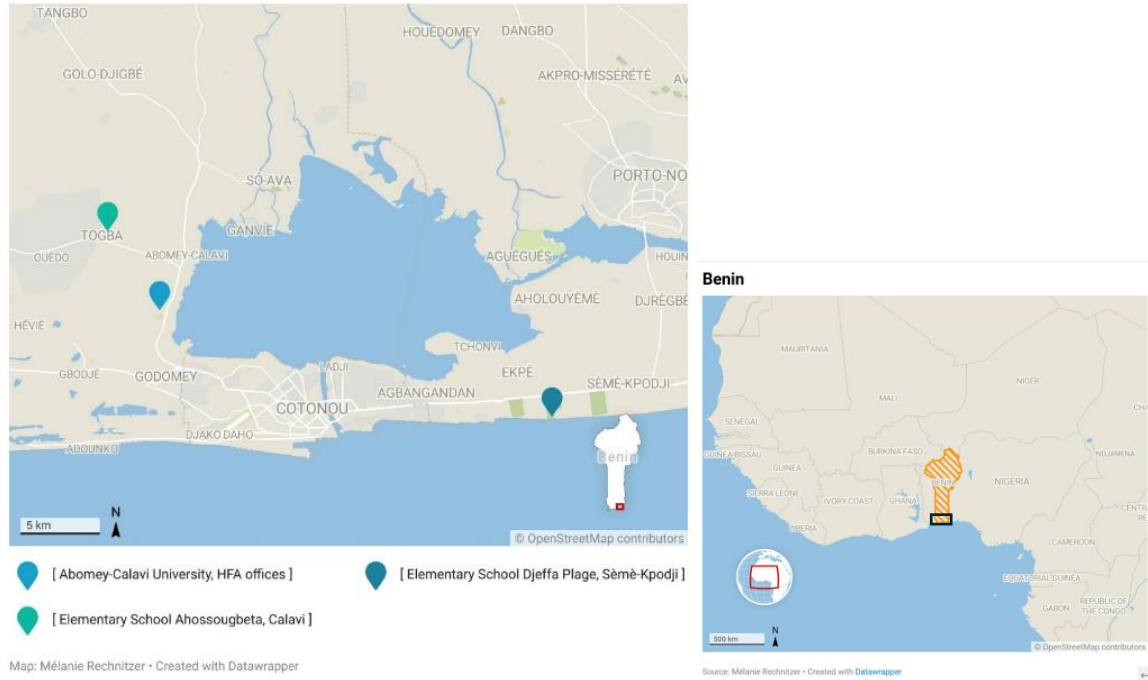
The Republic of Benin ranks 166th out of 191 countries with an HDI of 0.525 in 2023 (World Bank, 2023). Although it is more politically stable than its neighbours; Togo, Burkina Faso, Nigeria and Niger, it is not immune to socioeconomic turmoil. Since the country's economy is dependent on the export of primary goods (cotton, cashews), it is vulnerable to the regional and international contexts. The growing unrest in neighbouring countries, the war in Ukraine and COVID-19 all contribute to the rising prices of food and energy (World Bank, 2023; Houessou et al., 2021; Houessou et al., 2020). The agricultural sector accounts for 30% of the country's GDP and 70% of the population depend on this sector for employment (World Food Program, nd). However, the sector consists of small farms with low productivity. As a result, 83% of households cannot afford a nutritious diet (World Food Program, nd). Moreover, 36% of children under the age of 5 suffer from chronic malnutrition which leads to stunted growth (World Food Program, nd.).

In this context, Benin's government, in collaboration with the World Food Program (WFP), has implemented *Le Programme National d'Alimentation Scolaire Intégré (PNASI)* or school meals program. This program made Benin seen as a model of Food and Nutrition Security (FNS) among West African countries (World Food Program, nd.). Despite the soundness of the program, the PNASI is not without flaws. The government supplies the canteens with staple food such as oil, rice, corn, and yellow peas. Parents are also expected to contribute with seasoning, vegetables, fish and meat or to give 50 franc CFA (0.076 euros) per day per child (World Food Program, nd.). However, most parents do not make these contributions, which limits the canteens' capacity to offer well-balanced and nutritious meals. This is precisely the problem that HFA aims to address by striving to improve the nutritional quality of these meals.

HFA is "a research & innovation project aiming at more sustainable, equitable and resilient food systems in 10 African cities" which works in collaboration with 17 partners in Europe and Africa and was founded by the European Union Horizon 2020 programme (Homepage HFA, 2022). HFA believes in Food System Labs (FSLs) as a promising strategy for achieving transformational impact. Consequently, this research was based at HFA's office in Cotonou, which is located at the University of Abomey-Calavi (see map Figure 4). Specifically, the fieldwork and data collection were conducted at two HFA-operated schools: Ahossougbeta School in Calavi and Djéffa Plage School in Sèmè-Kpodji (see map Figure 4). Conducting research in these two distinct schools allowed for comparative analysis of different contexts.

Figure 4 Map of Benin and HFA's Living Labs

Map of HFA's Living Labs in Benin



The mission of Cotonou’s FSL is to “improve the diets of children and adolescents through school and urban gardening, through production (school and community gardens) and capacity building (curriculum, and policy outreach)” (Awuh et al., 2022, p.45). This research will seek to analyze the capacity of the expected beneficiaries to adopt two innovations promoted by this FSL. The latter being the “Integration of nutrition into the school curriculum” and the “school gardens” (see Table 1 for detailed descriptions) (Awuh et al., 2022, p.46). These were set to be a unique collaboration between school principals, researchers and teachers (Awuh et al., 2022). The fact that these innovations not only target both parents and children but also involve multiple stakeholders renders them innovative (Thiele et al., 2022). By all means, it promotes a change of behaviour that goes beyond school boundaries in addition to fostering a collaboration among multiple actors to fill an educational gap. Consequently, it offers an interesting basis for investigating the adoption capacity and capacity building of beneficiaries since these innovations aim to initiate a change of social practices that go beyond those of the classroom to reach the household level through knowledge-sharing with both children and parents.

Table 1 Overview of HFA’s Initiatives and Innovative Practices

INITIATIVES	DESCRIPTION	OBJECTIVE	Innovative food practices	Targets
Nutritional workshop	Educate the students, teachers and the cooks about the roles of the different food groups and the concept of a well-balanced meal.	Participants are able to know the different food groups, their roles, and can define the notion of a balanced meal.	Increasing the knowledge on food groups and the adoption of more well-balanced meals.	1. Students from CE1, CE2 and CM1 (grade 2 till grade 4, age between 5 to 11 years old) 2. Teachers 3. Cooks 4. Parents
Workshop on Leafy vegetables	Instruct the cooks and the teachers on specific preparation techniques for leafy vegetable	1.Enable participants to explain and understand the benefits of the cooking techniques.	Adopting the new cooking techniques of leafy vegetables at home.	
School Garden	Establish of school gardens to provide school canteens with fresh fruits and vegetables	“Recipes with high nutritional and sanitary values are cooked in canteens and served to children”	Improving diets with fruits and vegetables through gardening.	

Source: Awuh et al., 2022, p.132; HFA, 2023

CHAPTER 4: METHODOLOGY

This chapter outlines the methods designed to explore the factors influencing participants’ capacity to adopt an innovative food practice.

4. 1 RESEARCH QUESTIONS

Main Research Question: What elements of social practice (material, competencies, meaning) need to change to respond to the introduction of an innovation in creating more sustainable food practices at a household level?

The supporting sub-questions are as follow:

SQ1: To what degree are participants able to integrate innovative food practices into their daily routines, and what specific changes have they implemented in their food practices?

SQ2: What challenges do participants encounter when attempting to adopt new food practices, and how do these obstacles impact their ability to change?

SQ3: How do participants perceive and value the process of learning and adopting innovative food practices?

These sub-questions have been modified from the original proposal to better reflect the research’s objective (see Appendix 1).

4.2 OPERATIONALIZATION OF VARIABLES

The main variables underlying the structure of the data collection and analysis are the three components of SPT. These are operationalized as follows:

Table 2 Operationalization of Variables

VARIABLES	OPERATIONALIZATION
Materials	The researcher assesses participants’ access to the necessary materials (things, objects) required to benefit from a novel food practice.
Competencies	The researcher assesses participants’ specific skills and knowledge needed to benefit from a novel food practice.
Meaning	The researcher explores the participants’ perceptions and attitudes towards the adoption of an innovative food practice.

The operationalization of the SPT components serves a dual purpose. The researcher can structure the study following the theoretical framework while gaining insights into the multiple factors at play while studying household food practices.

4.3 RESEARCH DESIGN

Since SPT studies the “doing of everyday practices”, it requires a methodology that examines what occurs “in the performance of practice such as ethnography” (Hargreaves, 2011, p.84). Consequently, this research engages with a collaborative ethnographic approach. The latter aims to enhance participants’ agency as it involves collaboration between the researcher and participants throughout the entire research process (Seligmann & Estes, 2020). This approach is relevant as this research seeks to challenge the hierarchy between the researcher and the participant by ensuring that “knowledge and expertise is shared” (Lassiter,

2005, p.84). It is also fundamental the local community's knowledge and concerns are prioritized since they are more familiar with their social practices and the changes needed to integrate innovations.

This research is inductive since it studies the issues from participants' perspectives and field observations. Induction allows the researcher to "recover practical meanings and commonsense" instead of imposing a scientific hypothesis extraneous to the everyday lives of participants (Pouliot, 2012, p.50). It is also interpretive since social practices are complex and are shaped by a myriad of elements such as the socio-cultural context and human experiences.

4.4 METHODS

The specific methods used for data collection are semi-structured interviews, participant observations and focus group discussions.

The rationale for these choices is that: Firstly, since this research seeks to understand individuals' perceptions of

innovations, semi-structured interviews were preferred to focus group discussions because they allow for a more honest account on the part of the interviewee that is not subject to the scrutiny of other participants. This is especially true since semi-structured interviews diminish the interviews' power over the interviewee (Hennin et al., 2020). Interviews were conducted with the help of a translator until saturation was reached, leading to a sample of twenty participants.

Secondly, the FSL's innovations include parents, teachers and children as beneficiaries. Therefore, participant observations were conducted over three months to understand the behaviours and responses of teachers and children to the initiatives (workshops and school gardens, see Table 1). This method aimed to facilitate comparisons between attendees and non-attendees of the FSL's initiatives, focusing on their perception of the innovations and the overall household dynamics regarding food practices. As the researcher worked for the FSL in facilitating the initiatives, it offered the advantage of direct involvement in the dynamics of participants' everyday social settings (Pouliot, 2012).

Thirdly, one focus group discussion was conducted with three key informants. Prior to the fieldwork, the plan was to conduct focus group discussions with the parent committees. However, limitations on the ground prevented the execution of this method. To overcome this shortcoming, a focus group discussion was conducted with key informants. This method aimed to gain a more nuanced understanding of the norms and values, drawing on firsthand experiences from individuals with substantial knowledge of the communities (Hennink et al., 2020).

Methods

1. Semi-Structured Interviews
2. Ethnographic Participant Observations
3. Focus Group Discussion

4.5 SAMPLING STRATEGY

Sample selection: The sample consists of twenty participants and three key informants. Participants qualified for the study by being either a parent whose children had participated in the workshops, or by being a teacher or a cook working in the schools in Calavi or Sèmè-Kpodji and having attended the FSL initiatives.

Key informants: The key informants were three colleagues of the researcher, all of whom had worked for the FSL for at least one year and were responsible for facilitating the workshops in the chosen schools. As well-known figures in the community, they acted as gatekeepers, facilitating initial contact between the researcher and the first participants at the two schools.

Snowball Sampling Method: The first participants were the people who attended the FSL's initiatives, the teachers and the cooks. They were the easiest to reach out to, given the direct involvement of the researcher with the schools. From these initial participants, the snowball method was used to reach out to the rest of the participants, particularly the non-attendees such as the parents. For instance, a teacher would ask a student to ask his mother if she would be available for an interview. The researcher would then interview this participant, and ask the latter if other parents would be interested in participating in the study. This process allowed for gradually expanding the size of the sample. This strategy was chosen for its relevance to the fieldwork context. Indeed, the snowball method ensured that parents, who did not participate directly in the FSL initiatives, were included in the study, providing a more diverse group of participants consisting of teachers, cooks and parents as shown in the subsequent table (see Table 3).

Table 3 Category of Participants

Participant Group	Number of Participants	Gender Breakdown
Attended the workshops: cooks (c) and teachers (t)	11	4 women, 7 men
Did not attend the workshops: parents (p)	9	7 mothers (m), 2 fathers (f)
Total of participants	20	11 women, 9 men

4.6 DATA COLLECTION INSTRUMENTS

In the initial stages of this research design, participants were to play a more active role in the design of data collection instruments in line with the collaborative ethnographic approach. Participants' feedback was

supposed to be incorporated to ensure that the questions were clearly understood by interviewees and to foster collaboration early in the research process. However, due to a lack of time and difficulties in contacting participants, this was not included in the process. To overcome this issue, the key informants were asked to revise the interview guide with the researcher. Moreover, a restitution of the data collected was made to the participants to incorporate their comments, enabling a more transparent and collaborative process between researcher and participants.

The data collection instruments consisted of different interview guides, each tailored to the participant's particular role; teacher, cook or parent (see Appendix 2). The questions were drafted according to the main variables of the SPT, material, competencies and meaning, following the operationalization of variables (see Table 2). The length of the interviews varied between 30 to 60 minutes and were conducted at either the school or the participants' homes. Interviews at the school were chosen to accommodate teachers and cooks who were already present on-site, limiting any disruption to their schedules. As for the parents, they indicated a preference for interviews to be carried out in their homes. This strategy was effective as it saved time and offered a more accessible environment for participants.

4.7 DATA ANALYSIS

Overall the steps for the data analysis were as follows. Initially, categories were defined deductively based on the three SPT variables. This step provided a framework to ensure that the following steps would align with the theoretical framework of this research. Then, NVivo was used as a tool for the inductive coding of the transcripts. This process included linking the codes to the predefined themes while retaining the freedom to add themes when relevant. Main themes were then redefined based on the codes (see Appendix 3). Finally, a code tree was created to organize the different themes in such a way that it facilitated the alignment of the findings with the research questions (see appendix 4). This methodological analysis that including a dual approach of deductive and inductive coding ensured that the findings were grounded in theory while retaining the most important aspects of the data.

4.8 REFLECTION ON THE POSITIONALITY AS A RESEARCHER

This study was conducted in two different elementary schools in Benin by a white Western woman. Although the participants were receptive to and engaged with the discussion, the data collection process was inevitably influenced by language and cultural barriers. As a result, understanding the local context and the various dynamics at play was limited, highlighting the difficulties inherent in cross-cultural research. Furthermore, the researcher's involvement with HFA, alongside conducting field research precisely on the impact of HFA's initiatives, might have caused some participants to perceive a lack of independence. This perception

could have prevented them from being completely honest about their opinions of the initiatives during the interviews. The researcher maintained transparency throughout the research process, sharing results with both the host organization and participants while ensuring complete anonymity for the latter (refer to Appendix 5 for more details on ethical considerations).

CHAPTER 5 : RESULTS

This chapter will provide the reader with a comprehensive understanding of the intricacies involved in adopting innovative food practices at home through school-based programs. In the first section, the participants' ability to adopt new practices is analyzed with regard to the different innovations introduced by HFA through both the nutritional workshops and the school gardens (refer to Table 1). The second section explores the socio-economic factors linked to different geographical locations that influence participants' ability to adopt innovative practices. The third section presents the main challenges participants identified as preventing them from adopting an innovation, which will be analyzed following the three components of SPT; material, competencies and meaning. It will also explore the key factors influencing the adoption of innovative food practices. The section examines participants' perceptions on a household level and considers the larger social context to gain a deeper understanding of these influences. The fourth section presents participants' perspectives on more effective ways to disseminate knowledge.

5.1 ASSESSING THE IMPACT OF THE FSL' INITIATIVES ON BENEFICIARIES' ADOPTION OF FOOD INNOVATIONS

This section highlights how the innovations were adopted at the household level, answering the first sub-question. By comparing HFA's two initiatives, the section seeks to understand the factors facilitating the adoption of innovative food practices. Consequently, it examines the degree of success of the initiatives in enabling novel food consumption and preparation habits at home through school-based programs.

The first set of findings will examine the impact of the workshops in supporting the first two innovative practices (refer to Table 1) by assessing the differences in perceptions between interviewees who attended the workshops (cooks and teachers) and those who did not (parents) (refer to Table 3). It will then explore the effectiveness of the school gardens in promoting the integration of more fruits and vegetables into the diets of participants' households. This section emphasizes the knowledge transmission gap and the importance of hands-on learning versus theoretical knowledge.

5.1.1 NUTRITIONAL WORKSHOPS WERE INSTRUMENTAL IN FOOD KNOWLEDGE ACQUISITION

Nutritional workshops' attendees showed an increased ability to adopt the practice of a well balanced meal in the household and acquired additional knowledge about different food groups. This is evident from the

disparity between attendees and non-attendees. Participants who did not attend the workshop had limited knowledge and interest in this initiative. Interviews revealed that a significant portion of the parents had only a vague idea of the content of the workshops their children received at school. This point is supported by the parents themselves. For instance, one mother who did not participate in the workshops and had limited interest in school affairs shared her thoughts:

“It’s a matter of education, that when you ask your child, he will lie a little, what happens at school stays at school and what happens at home stays at home, you shouldn’t ask them too many questions.” (m, p#4)

This reveals that the channels of communication between the school and parents were often limited to the children, which teachers claimed to be insufficient. The following response from a teacher working in Sèmè-Kpodji speaks to that issue:

“No, that’s not enough. What you need to do is call a general meeting to communicate more with parents and explain the benefits of the workshops you’re running with their children. That way, communication will be more effective than if the children talk about it at home.” (t, p#12)

This highlights the workshop’s limitations in influencing a change in household food consumption practices. Getting access to knowledge is the first step towards acquiring new competencies, which in turn can enable a change of practices. Without direct access to the initiatives, parents’ capacity to adopt a novel food practice is significantly hindered.

Conversely, participants who did attend the workshops expressed a positive influence of the initiative on their food practices at home. This is exemplified by the two following quotes that were shared by two teachers when asked about their opinion on the initiative:

“It’s a great initiative, and not only do the children benefit from it, but so do we teachers, because we’re not done learning, so it’s also a lesson for us, and we’re using it to try and change our children’s diet at home.” (t, p#12)

“I really appreciated it because I learned a lot of things, even how to prepare food at home, I even gave my child at home the flyer I received last year, he reads it, he says he knows the foods for strength and protection.” (t, p#11)

These quotes show that the knowledge gained from the workshops was shared beyond the school grounds, as participants discussed these concepts with their families. As mentioned by the latter participant (p#11), this was facilitated by HFA’s visual materials, such as flyers on food groups and balanced meals (see Figure

5). This sharing of information induced a change of practice. This result is best demonstrated with one mother who works as cook in Sèmè-Kpodji. She said:

“Before, I didn't eat fruit, but since I've participated in the workshop, as soon as I've finished eating, I wait a bit (...) and then I take the fruit.” (c, p#8)

This quote points to a direct change in food practices as a result of the workshop. Hence, these three quotes reveal that the workshops were instrumental in encouraging participants to change their food practices. They were able to not only identify different food groups but also transmit these notions at home to their spouses and children.

Figure 5 HFA's Flyers on Food Groups and Balanced Meals



5.1.2 EFFECTIVE WORKSHOPS DRIVE SIGNIFICANT ADOPTION OF LEAFY VEGETABLE COOKING TECHNIQUES

Among participants who attended the nutritional workshops, a considerable number cited the cooking techniques for leafy vegetables as the innovation that they adopted the most readily, as pointed out by this teacher who highly appreciated the workshop:

“We're used to pre-cook the vegetables, and when we make the sauce we take the vegetables and pour them into it, whereas our training tells us that we shouldn't cook the vegetables beforehand; as soon as the sauce is ready, we have to cook the vegetables in the sauce to preserve the vitamins.” (t, p#12)

This testimony reveals that this workshop provided attendees with practical skills that they could easily implement at home. The specific techniques taught, such as not boiling vegetables before adding them to the sauce to preserve their vitamins, allowed them to use their existing resources to acquire healthier food practices.

Based on the findings, it appears that the workshops were key in enabling participants to change their cooking habits, especially for those who attended. They were able to share the new notions with their families, leading to a change of practices in the household. Participants felt empowered to reproduce these

practices at home, thus recognizing the sustainable potential of these innovations. Conversely, participants who did not attend the workshops had a limited understanding of their content. Due to their limited access, it was harder for them to understand the role of different food groups and to integrate well-balanced meals at home. The disparity in adoption capacity between attendees and non-attendees demonstrate how the direct involvement with the workshops helps participants to understand the relevance of the innovation for their own benefit. Rigg et al.'s (2021) study of innovation and learning among small food producers point to the importance of practical engagement with the initiative to foster the adoption of innovative practices. The direct involvement in workshops provided a tangible link between the participants' daily lives and the new practices, making the initiative more relevant and accessible.

SPT needs to be taken into consideration to evaluate the workshops' effectiveness. In terms of competencies, the workshops provided participants with the essential notions to enhance their abilities and knowledge of the novel practices. Regarding the meaning component, the workshops helped participants recognize the health benefits of such practices, thus encouraging their adoption. Finally, because the new cooking methods use vegetables that participants have access to, the only changed required is in how they are prepared. Consequently, there was no need for adopting new materials, which facilitated the adoption of these new cooking methods.

5.1.3 SCHOOL GARDENS AS CATALYST FOR THE SUSTAINABILITY OF INNOVATIVE FOOD PRACTICES

The school-garden initiative had a more significant impact than the workshops in promoting the integration of innovative food practices, particularly in increasing participants' willingness to incorporate more fruits and vegetables into their diets and encouraging them to establish their own gardens. It is important to note that this impact was observed for all participants, not only those directly involved at school.

For participants involved with the school garden (see Figures 6 and 7 for illustrations of school gardens in the study area), such as teachers, field observations revealed that they incorporated time into their schedules to send students to the garden and they themselves spent time assisting with planting and watering the vegetables. This hands-on experience generated visible enthusiasm among students. Thus, participants perceived the garden as an efficient tool to pass on knowledge to parents, as explained by these two teachers who expressed their enthusiasm for the garden. They said:

“If children learn how to do it they can do it at home and then if it works and the parents see the benefits, they will start doing it as well, that is why the garden is great.” (t, p#12)

“everyone got down to work, even for the planting, it was an unprecedented spontaneity, especially as the children were already imbued with the lessons, they were attracted by the fact that we were told to

eat this and now we have to get our hands dirty, that we're going to plant what we ourselves are going to eat.” (t, p#17)

These quotes illustrate that, in addition to providing practical gardening knowledge, students were more likely to share these practical skills at home than the theoretical concepts covered in the workshops.

Figure 6 School Garden in Calavi (Evolution over three months)



Figure 7 School Garden in Sèmè-Kpodji



Moreover, for participants directly involved with the garden, the initiative facilitated the incorporation of fruits and vegetables into their food habits. It inspired teachers to implement similar gardening practices at home to diversify their meals. One teacher shared their proactive steps in creating a home garden:

“I’ve even started to clear a corner to make my own garden, and when I saw the new technique they showed us, now we’ll be planting a few seedlings like I’ve seen done here, we never finished learning.” (t, p#18).

Another teacher highlighted the benefits of the garden for the school by saying:

“That’s a very good thing! I thought our school won’t have to suffer any longer before we have a perfect meal in our school!”(t, p#13)

These testimonies show that more accessible and practical knowledge sharing fosters greater practice adoption. Moreover, participant’ hands-on involvement with the school garden allowed them to embrace the innovative practices while also recognizing the broader benefits for their school. This result coincide with Frisk & Larson’s (2011) research on effective sustainable education that posits that promoting behavioural change is not only about taking action but also about understanding the consequences of our actions.

As for participants not directly involved with the school garden, they valued the garden's ability to produce at a lower cost and without pesticides, making it an appealing and sustainable choice for healthier eating habits. They indicated a willingness to incorporate more vegetables and fruits into their meals if they could establish a garden at home. As evidenced by the following quote from a mother who shared her satisfaction with the initiative:

“it's important because look when we prepare vegetables for the kids, now there's some in there that's good, whereas before there was a bit in the sauce, and now it's fresh, it's natural, it's very good, we're happy.” (m, p#3)

This widespread interest and adoption demonstrate the garden initiative's potential to promote long-term sustainable food practices in the household.

These findings align with Frisk & Larson's (2011) argument that the potential for sustainability is reinforced by educational approaches that are action-oriented. They add that sustainable behaviours are motivated by factors such as practical experiences, social influences, and benefits of the behaviour in one's daily life (Wheeler, et al., 2008 cited in Frisk & Larson, 2011, p.12).

The success of the school garden initiative in initiating a change of food practices demonstrates that the more tangible an innovation is, the greater its potential for adoption. In SPT terms, the hands-on experience (competencies) provided by the garden built capacity among participants, which increased the value (meaning) they saw in adopting these new practices. It provided them with knowledge and practical skills to create their garden at home with their existing resources (materials). As a result, the garden can be viewed as a pivotal aspect for the project's sustainability.

5.2 SOCIO-ECONOMICAL DISCREPANCIES AFFECTING BENEFICIARIES' ABILITY TO ADOPT AN INNOVATION

This section further answers the first sub-question by exploring how the geographical context interlinked with socio-economic factors influences participants' ability to integrate the innovative practices.

The focus group discussion with the key informants highlighted significant differences between the communities in Sèmè-Kpodji and Calavi regarding the third innovative practice of integrating fruits and vegetables through gardening (refer to Table 1). In Sèmè-Kpodji, gardeners and fishermen make up the majority of the population. According to key informants, this is due to the commune's proximity to the sea and its more rural setting that provides the necessary space to develop gardens (see Figure 8 for a detailed view of the school's green surroundings). On the other hand, since Calavi is a city, fewer people rely on

agriculture for their livelihood (see Figure 9 for a detailed view of the urbanized area and lack of green spaces surrounding Ahossougbeta school in Calavi). This is supported by field observations which revealed that participants' level of involvement with the school garden was unequal across the sample. In Sèmè-Kpodji several fathers and teachers were highly involved with the garden. In contrast, in Calavi, no parents or teachers were observed working in the school garden.

Figure 8

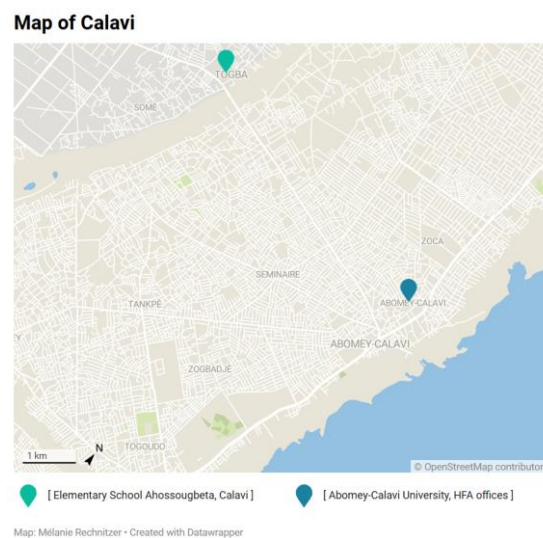
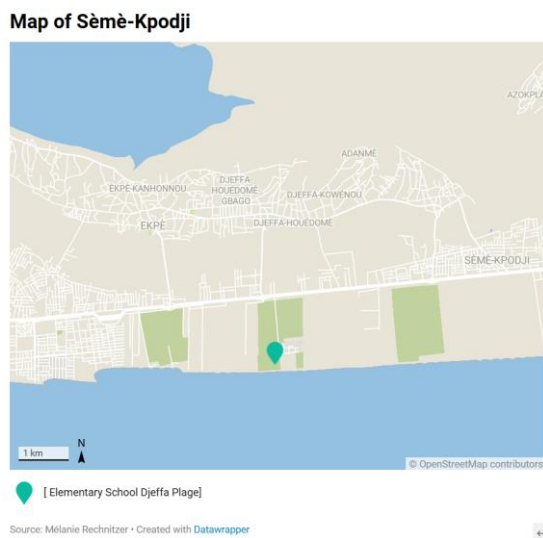


Figure 9

The lack of training and support for improving gardening skills represented a significant obstacle to their participation and the adoption of the practice at home, as noted by this teacher working at the school in Calavi:

“Some training about the garden can also help me to make a small garden at home, that would make me happy because I don’t know how to do it” (t, p#13)

This quote underscores the need for more hands-on training in contexts where the lack of pre-existing skills impedes beneficiaries' ability to adopt the new practice.

In contrast, the president of the parent committee in Sèmè-Kpodji is a professional gardener. He was put in charge of the school garden and expressed his enthusiasm to take part in the project:

“In our little garden here, within 3 months, or even 6 months, we're going to be producing our own carrots, cabbage, parsley, cucumber and tomatoes, because in Africa there are seasons for tomatoes, and when we're in the production season we have to take advantage of them to process them and be able to store them. And in the course of the year, we have to prepare such and such a quantity, so that we know how many tomatoes to reserve for the canteen. So, the garden is welcome” (f, p#10).

This participant's long-term planning and motivation toward the garden underscores this initiative's potential to become a lasting resource for the improvement of beneficiaries' diet. His testimony speaks to the fact that pre-existing skills among participants facilitated greater involvement in the school garden, fostering hope for the project's sustainability.

Therefore, the socio-economic context of each location influenced participants' ability to adopt the school garden initiative, as gardening being a common occupation in Sèmè-Kpodji contributed to the successful adoption of the innovation. Conversely, in Calavi, the lack of specific training prevented participants from acquiring the necessary competencies to adopt the innovation at home. Since their pre-existing abilities aligned with the project, participants were more inclined to engage with it, and thus have a better access to the innovation. As a result, a holistic approach is required to fully assess the factors that influence the successful adoption of innovations. SPT's scholars do recommend analyzing individual practices as being linked to larger socio-cultural dynamics (Shove, 2010; Hargreaves, 2011, p.79; Holland & Lave, 2019).

5.3 ASSESSING THE CHALLENGES HINDERING INNOVATIVE FOOD PRACTICE ADOPTION

This section first discusses the barriers preventing participants from adopting innovative food practices, with a focus on how factors concerning domesticity such as norms, socio-economic conditions, impact women's capabilities to adopt innovations. It then examines the factors influencing the successful adoption of these practices. By addressing these issues, this section answers both the second and third sub-questions. The three SPT components (materials, competencies and meanings) are used to analyze the following findings in relation to each of the innovative practices: adopting balanced meals and increasing the consumption of fruits and vegetables through gardening.

5.3.1 MATERIAL CHALLENGES TO THE ADOPTION OF A BALANCED MEAL AND CONSUMPTION OF FRUITS AND VEGETABLES THROUGH GARDENING

The first category presented is the material challenges that beneficiaries face in adopting a well-balanced meal and integration of fruits and vegetables through gardening. Under this category two prominent themes arose from participants' testimonies: financial means and time constraints.

Financial Hardship as a Material Challenge:

Participants identified the lack of financial means as their primary obstacle to adopting well-balanced meals. As exemplified by the following quotes from two mothers in Calavi when expressing themselves on the issue:

“The education sessions we do are a good thing, the only problem is money, money is needed to be able to diversify the diet. We don't have enough to prepare normal food so where are we going to find the money to add fruit, to accompany meals with papaya, pineapple but it's the money, and if the money is there people will eat well and be healthy” (m, p#1)

“It's just a financial problem to make sure the meal is balanced, and right now if we eat three meals a day, only one will have all three food groups, only one will be balanced.” (m, p#4)

Mothers prioritize affordable foods because they believe that a varied diet is more expensive. This perception is supported by studies showing that incorporating diverse food groups, like fruits, vegetables, and animal-based proteins, costs more than staple foods. A study conducted by Mitchikpè et al. (2001) demonstrates that reality. They found that 37% to 52% of household expenditures in urban Benin are spent on food. Furthermore, a survey conducted by Houinato et al. (2008) reported that 78% of the population does not consume the recommended five portions of fruits and vegetables daily. Staple foods like cereals and tubers (manioc, yam) form the basis of their diet, other food groups such as protein serve only as supplements (Lévesque, 2014). These studies indicate how economic situations influence food habits in households.

However, interviews with workshop attendees revealed that, while economic constraints are a challenge, it is the perceived cost of adopting new food practices that predominantly hinders adoption. Indeed, the possibility of overcoming financial barriers through effective training in using available resources differently has been proven to be particularly effective for workshop attendees. This is best illustrated by this teacher who stated that:

"It wouldn't be difficult, if the parent doesn't have the money to buy the fish, if the nutritional element that you find in the fish is in the food next to him, and we show him how to use it, he'll be able to do it, to prepare [a balanced meal]." (t, p#19)

While participants not involved with the workshops believe that well-balanced meals are associated with higher costs, it is not necessarily the case. This finding is key as it demonstrates the need to disseminate knowledge beyond school grounds to improve innovations adoption at the household level.

Lack of Time as Material Challenge:

Time constraints was noted as preventing participants, particularly mothers, to adopt a more varied diet. A mother in Calavi revealed that balancing family meals and work left her little time to change her food preparation methods, stating that:

“I’m a saleswoman, preparing for the sale takes time, I concoct simple things because I don’t have time” (m, p#3)

This quote reveals that time is a primary issue for mothers, especially working ones. It is perceived as both a challenge for taking the time to learn new food preparation techniques and for creating their own garden. This aligns with findings from a qualitative study conducted in Benin, Malawi, and Nigeria on women's capacity to exercise time-use agency. These findings revealed that “Many women across the sample shared experiences of disproportionate time burdens in fulfilling their expected roles and responsibilities, primarily in relation to household chores such as cleaning, childcare and food preparation. (Eissler et al., 2022, p.1020). The similarities between the experiences of women in this study and those of the participants suggest the broader significance of time management issues as a barrier to the adoption of innovative food practices. Time represented as well an obstacle to taking part in the workshops, and thus accessing knowledge. The latter issue is covered in more detail in the theme that follows.

5.3.2 COMPETENCIES CHALLENGES TO THE ADOPTION OF A BALANCED MEAL AND CONSUMPTION OF FRUITS AND VEGETABLES THROUGH GARDENING

Competencies, defined as the skills and knowledge required to perform a certain practice (Pouliot, 2012), are necessary to facilitate the adoption of new food practices among participants not directly involved with the initiatives, such as parents. Participants have identified the lack of access to knowledge as the main barrier to acquiring skills for adopting balanced meals and for engaging in gardening and new cooking techniques for leafy vegetables. Two main factors contribute to this challenge: time management constraints and inadequate communication between parents and the school-based programs. These findings underline the significant role of accessible knowledge in building beneficiaries’ capacity to adopt innovative food practices.

Time Management Constraints as a Barrier to Acquiring New Competencies:

Among participants not involved in the FSL’s initiatives, women are notably face challenges in acquiring the necessary competencies for adopting innovative practices. This is exemplified by a mother who expressed her limited time for school involvement :

“I have to stay at home to prepare food for the children, look after them, do household chores, so I don’t have time to for those parents meetings” (m, p#2)

This quote underscores how domestic responsibilities and traditional gender roles prevent mothers from participating in training sessions to acquire new skills. The focus group discussion with the three key informants confirmed that cooking practices in Benin are passed down from mother to daughter, with most families assigning the task of cooking to women. These “gender norms around the intra-household division of labour” (Eissler et al., 2022, p.1011) are prevalent in the literature on domesticity in Sub-Saharan Africa and in the Global South where women are disproportionately responsible for unpaid care and domestic work (Eissler et al., 2022; Lazlo et al., 2020; Dinkelman & Ngai, 2022).

Despite this gendered division of labor, mothers across the sample expressed pride in this responsibility. Therefore, the analysis does not point to the gendered task division itself as a barrier to acquiring new competencies, but rather to how time constraints linked to domestic tasks prevent mothers from accessing knowledge. Furthermore, mothers’ ability to access knowledge has a direct impact on children’s diet as expressed in the following quote:

“I’d like parents, especially mothers, to be informed about the foods that can help, because children need foods for growth, strength and protection. So moms need to be informed about the role of food groups, and then they’ll take them into account in their preparations, without being taught, they will not know. Even if they don’t have the means, it’s enough for mothers to be informed of these notions so they know how to improve their children’s diet.” (t, p#19)

This quote emphasizes that to create effective changes in children’s diets, mothers need to learn and replicate the nutritional knowledge transmitted from school programs within their households. This is supported by findings of another study conducted in Cotonou that suggest that even after accounting for biological and socioeconomic variables it is: “maternal safe food preparation behaviours” that prevent child malnutrition (Nagahori et al., 2018, p.880). These and those of this research press the importance of insuring that FSL’s initiatives account for participants’ time constraints.

Inadequate Communication as a Competencies Challenge

Access to knowledge is unequal across the sample since innovations are introduced through school-based programs, granting direct access to knowledge on novel practices only to students, teachers and cooks. Parents have limited access for two reasons. First, students serve as the primary source of information for parents regarding school activities. Yet, as the interviews revealed, parents not always value or trust this information. The following quote by one middle-aged male teacher working in Calavi elementary school highlights this sentiment:

“Children will talk about it to their parents, but the parents won't give much importance to what they are saying, because they'll think they're just children” (t, p#11).

Supporting this, one mother's response indicated shortcomings in communication between parents and the school:

“I know you come to school and give workshops, but not exactly what, I don't know the details because my daughter hasn't told me.” (m, p #4)

Relying on children as the primary source of information about new food practices not only underscores weak communication channels between schools and parents but also creates disparities among different beneficiary groups in their access to innovation. While teachers can acquire competencies for practicing food innovations within their routine because the initiatives are offered during their working hours, students' parents must find time in their schedules to participate in school activities to directly engage with the training on innovative food practices.

5.3.3 MEANING CHALLENGES TO THE ADOPTION OF A BALANCED MEAL AND CONSUMPTION OF FRUITS AND VEGETABLES THROUGH GARDENING

Meaning, the third component of SPT, refers to the symbols and value individuals attribute to certain practices (Pouliot, 2012). This section addresses two key aspects of this research regarding the meaning given to innovative food practices. First, analyzing participants' negative perceptions towards novel food practices answers the second sub-question by exploring how these perceptions constitute barriers to adopting such practices. Second, exploring how participants value their current food habits and cooking practices, and how they perceive learning new practices, addresses the third sub-question.

Accordingly, this section will delve into participants' negative perceptions of the new food practices, illustrating the challenges in adopting these practices. It will then examine the broader value participants attribute to their current food practices, as well as their willingness to learn new practices, to understand the drivers leading to the adoption of innovations.

NEGATIVE PERCEPTION OF INNOVATIVE PRACTICES AS A BARRIER TO INNOVATIVE PRACTICE ADOPTION

The main challenges hindering the adoption of the proposed food practices result from parents' negative perceptions of school-based programs. Indeed, key informants and teachers pointed out the lack of parents' participation in school activities and parent meetings. The perceived irrelevance and mistrust toward these programs constitute the dual factors contributing to the negative perceptions associated with adopting the new food practices.

Perceived Irrelevance as a Meaning Challenge:

Key informants shared that efforts on the part of the school have been made to share the information about HFA's initiatives by convening parents to school meetings. However, they noted that only few parents attended, perpetuating the vicious cycle of miscommunication between parents and schools and reducing participants' chances of learning about the innovations. One reason for low attendance at parent meetings is a misunderstanding of the potential benefits school activities could provide them. This sentiment is confirmed by one teacher, who noted:

“For lack of time, they do their thing, they think they're going to waste their time here while they go and get the money” (t, p#11)

This quote demonstrates that participants, working mothers in particular, see their involvement in school activities as a waste of time that could be better spent by working. A study on effective educational approaches for sustainability conducted by Frisk & Larson (2011) demonstrates that behaviour change is encouraged through the clarification of future benefits of current actions. Therefore, because expected beneficiaries do not perceive the immediate value of school over income-generating activities, there is a need to clearly communicate the long-term benefits of participation on their child's health.

Mistrust towards school-based programs as a Meaning Challenge:

Another, more widespread reason that participants shared is that many of their peers in the community have a strong reluctance to be taught about novel ways of cooking through school-based programs. This results from the mistrust community members hold toward these programs. One mother who works as a cook in Calavi expressed her understanding of this behaviour as follows:

“some parents are reluctant, they'll say what's over there, I already know how to prepare food, what else are they going to show me?” (c, p#8)

This response speaks to the attachment and confidence of community members in their existing food practices and traditional methods. As a result, the need for change is questioned. Rigg et al. (2021) interpret this behaviour through the lens of “existential knowledge boundaries” which are deep-rooted knowledge and practices that are resistant to change (p.625). In this context, the community members' reluctance to engage with the new practices transmitted through school activities can be interpreted as an existential knowledge boundary.

This reluctance among community members comes as well from a skepticism about the quality of school-based programs. This is supported by a teacher's explanation on parents' reluctance to engage with the innovations, stating that:

“Some people get the wrong idea: Is the food that's being donated stale-dated stuff? Stuff that they themselves can't consume over there? Under what conditions it was transported? For how long? So they have their doubts, which is normal.” (t, p#18)

The reluctance towards school-based programs can be traced back to past experiences with other school programs, leading to a lack of trust between the community and the school. To understand this mistrust, findings are analyzed at the community level. By using SPT's approach which offers a framework that “de-centre individuals from analyses” (Hargreaves, 2011, p.80), this study sheds light on the broader social context that shapes individual perceptions. Field observations revealed the low quality of the school canteen meals due to limited resources and poor cooking conditions of the schools' kitchens (see Figure 10 for an example of a school kitchen). These observations align with negative feedback from mothers not involved in school activities, as one mother said:

“it's not easy to digest, and that's why we refuse to let our children eat in the canteen, for example in the yellow peas, when they prepare them for the children, we find weevils in the yellow peas. So last time, I gave the food to the dogs.” (m, p#1)

Figure 10 School Kitchen



These testimonies highlight the concerns about the quality and safety of school canteen meals, contributing to parents' mistrust of school food programs, including the FSL's nutritional workshops. Parents tend to associate the FSL's food workshops with the shortcomings of the canteen. The broader context of the HFA's initiatives exacerbates skepticism towards new school programs. This mistrust is also influenced by involvement and access to school activities. For instance, a former mother cook who was directly involved with school activities, shared a contrasting perspective:

“It's thanks to the workshops that I allow my children to eat, to see that the workshops and the garden are trying to improve the canteen, so now I let the children eat in the canteen, but not before. That

it's necessary to make healthy meals, that when you look at the meal, you want to give, when parents see the weevils, they don't want to give if the quality and taste aren't there.” (c, p#7)

This quote illustrates how direct engagement can foster a more positive perception of school-based programs by alleviating mistrust. This brings the analysis to explore in more depth the third sub-question: How do participants perceive and value the process of learning and adopting innovative food practices?

POSITIVE PERCEPTION OF INNOVATIVE PRACTICES AS DRIVERS FOR INNOVATIVE PRACTICE ADOPTION

While a subset of participants hold negative perceptions toward learning new food practices, which derives partly from the mistrust against school-based programs, many participants across the sample expressed a strong willingness to adopt new food consumption and preparation practices. For example, a mother and a cook testified:

“The world is changing, and we can't rely solely on what we already know. It's important to learn new methods, while not forgetting our traditions.” (m, p#3)

“Well, what my mom used to do is different from what we do now, and what I do myself my children watch me do it. Today, I'm even more experienced, I have to show them the new things I learned, and they'll do it themselves.” (c, p#8)

Participants recognized the importance of traditional recipes but did not feel obligated to replicate or teach them unchanged to their children. Instead, there was a strong desire to integrate new food practices into their current food preparation habits.

Moreover, despite the persistence of gendered divisions of labour as discussed in section 5.2.2, participants showed a genuine desire to transmit cooking skills to all their children, regardless of gender. For instance, when asked if it was important for them that not only girls learn how to cook, all participants, both women and men, reported that while they learned their cooking skills from maternal figures, all their children should learn to cook. The main reason is reflected by this teacher's statement:

“All my children are called upon to live their lives separately at a given point in time, if you can't do without someone else's support and if you don't do anything yourself, you can't depend on another person. If your wife is not a good cook, you need to know how to do it yourself as well” (t, p#18)

Whether to keep up with the times or to enable their children to adapt to different contexts, participants across the sample attributed a positive meaning to integrating and passing on new food preparation practices. This finding contrasts with the literature on food neophobia. Siegrist and Hartmann (2020) state that individuals that hold strong attachment to tradition will perceive new food practices as having a higher risks,

and thus be less open to adopting new methods. However, the results of this study do not align with these claims. Instead, participants embraced new food practices despite their attachment to tradition.

That being said, a crucial finding reveals that, while participants want to adopt innovative practices, they do not know how. As previously stated, the lack of trust between the community and the school, as well as the lack of accessibility to school activities, prevent beneficiaries from having direct access to the FSL's initiatives. This inhibits their ability to learn about new practices and acquire the necessary competencies. This is why the next section explores innovative ways of accessing knowledge.

5.4 ALTERNATIVE KNOWLEDGE TRANSMISSION METHODS AS A SEGWAY TO IMPROVE BENEFICIARIES' ADOPTION CAPACITY

The main challenges to adopting new food practices were the lack of access to knowledge. Participants who could adopt with more ease the innovations were those directly involved with the FSL's initiatives. The theme of knowledge transmission emerged over the course of this research as key to understanding how to improve the FSL's initiatives to allow participants to benefit better from them. Consequently, the need for alternative knowledge transmission methods constitutes the main inductive finding of this research. Knowledge transmission is defined by Frisk & Larson (2011) as: "one party having the expertise and another taking or receiving it" (p.635). They argue that effective knowledge transmission occurs when the recipient understands and can apply it. The following section presents participants' perspectives on more efficient methods of knowledge transmission, underlining hands-on training and peer-to-peer knowledge sharing as two main ones.

Hands-on Training

As highlighted in section 5.1, and reiterated here, participants emphasized the value of practical, hands-on experiences in developing understanding and acceptance. The following testimony by a teacher working in Sèmè-Kpodji echoes the participants' understanding of how to enhance knowledge accessibility:

"That's why I ask that they also be made aware of and observe the school garden, and then, even if they didn't know how to garden, if they set foot here and see how it's done, they'll be able to start at home with the children, especially watering, you have to water in the morning and evening, those are notions that parents need to learn." (t, p#12)

This quote illustrates how observing and participating in the gardening process provides parents with the fundamental skills and confidence required to implement these practices at home. Therefore, the garden initiative is pivotal in enhancing access to knowledge and fostering a different way to share knowledge than

theoretical education alone. This aligns with Frisk & Larson's (2011) study that stresses how hands-on experience is key in overcoming resistance to learning about innovative food practices.

Peer-to-peer knowledge sharing

Another important finding is that peer influence is recognized as an important factor in overcoming resistance. Participants indicated that knowledge shared among peers is more likely to be accepted, as this teacher stated:

“They're going to wonder what's really behind all this, they're going to be really reluctant, but when they see us, who are their cousins, and they see that my children are healthy and his often get sick, and they're going to ask me what we're eating, and I'm going to say you want to know what I'm doing, I'm going to say start by doing this, we'll see, do that, we'll see, you've got to start first, you don't just talk, you have to link action to words and gradually they'll notice things, and he himself will gradually start to understand, and even if we don't tell him anything, he'll start by changing things” (t, p#18)

These testimonies show that practical engagement and peer-to-peer knowledge sharing are essential strategies for overcoming resistance to new food practices. The participants believe that using these methods will improve beneficiaries' access to knowledge because knowledge transmission will be disseminated beyond school grounds. Furthermore, as they see positive changes for their peers, these tactics will allow beneficiaries to be more effectively motivated to adopt and maintain innovative food practices in their daily lives.

These findings align with a key concept put forward by Brons et al. (2022), which underlines the importance of perceiving participants as experts rather than passive actors. Participants in this study demonstrated a clear understanding of the critical challenge of accessing knowledge. They also recognized the need for different methods to access knowledge to enhance the sustainability of the innovations, particularly with respect to tailoring knowledge sharing methods to the beneficiaries' needs and demands.

These findings necessitate critical analysis in light of existing literature. The next chapter will address these aspects and formulate practical recommendations.

CHAPTER 6 : DISCUSSION

This final chapter will provide the reader with a thorough interpretation of the findings in relation to the existing literature on the topic. It will then underline the implications of the findings to provide recommendations tailored to practitioners for future innovations implementation, thus answering the developmental relevance of this research. Concrete recommendations were made during this study's

fieldwork to HFA based on participants' perceptions of initiatives, these are listed in the blue boxes. Furthermore, the section will critically engage with the theoretical framework. Finally, it will highlight the limitations of this study and suggest avenues for future research.

The aim of this study has been to examine whether and how innovations can be adopted and accepted among people, addressing the research gap identified in previous studies on living labs and innovations. The latter did not adequately explore how innovations impact beneficiaries' ability to use them. Consequently, the study sought to provide answers to the following sub-questions:

1. To what degree are participants able to integrate innovative food practices into their daily routines, and what specific changes have they implemented in their food practices?
2. What challenges do participants encounter when attempting to adopt new food practices, and how do these obstacles impact their ability to change?
3. How do participants perceive and value the process of learning and adopting innovative food practices?

6.1 SUMMARY OF THE FINDINGS IN RELATION TO THE SUPPORTING RESEARCH QUESTIONS

6.1.1 TO WHAT DEGREE ARE PARTICIPANTS ABLE TO INTEGRATE INNOVATIVE FOOD PRACTICES INTO THEIR DAILY ROUTINES, AND WHAT SPECIFIC CHANGES HAVE THEY IMPLEMENTED IN THEIR FOOD PRACTICES?

With respect to the extent to which innovations were adopted at the household level, findings highlighted diverse outcomes. The first theme explored the impacts of the workshops in fostering the adoption of well-balanced meals at home. Findings showed that while workshops helped participants who attended the sessions to adopt the novel practices themselves and at home, they had limited impact on those who did not directly attend. The second theme examined the school gardens' impacts on enhancing beneficiaries' knowledge of healthy eating practices. The findings revealed that the garden's tangibility and capacity-building potential for participants explain its success and prospective for encouraging healthier and sustainable food practices at home. The second section stressed how geographical and socioeconomic factors influence participation outcomes. It revealed how participants' pre-existing skills in Sèmè-Kpodji facilitated their engagement and ability to adopt the innovative practice.

6.1.2 WHAT CHALLENGES DO PARTICIPANTS ENCOUNTER WHEN ATTEMPTING TO ADOPT NEW FOOD PRACTICES, AND HOW DO THESE OBSTACLES IMPACT THEIR ABILITY TO CHANGE?

In line with the findings about the challenges hindering the participants' capacity for adopting innovative food practices, the first theme looked at challenges that aligned with the material component of SPT. Participants cited the lack of financial means and time management constraints, especially for mothers, as

the main obstacles to adopting a well-balanced meal and adapting their current food practices. The second theme looked at a second component of SPT; competencies. The main finding was that the lack of access to knowledge, which is unequal among participants, prevented them from acquiring the necessary competencies to adopt novel food practices. The third theme looked at the meaning participants attributed to adopting new food practices which answered both the second and third supporting questions, as indicated subsequently.

6.1.3 HOW DO PARTICIPANTS PERCEIVE AND VALUE THE PROCESS OF LEARNING AND ADOPTING INNOVATIVE FOOD PRACTICES?

The first finding under this theme underlined participants' adverse opinions of school-based initiatives which hindered participants' adoption of novel practices. The second section answered the third sub-question in more depth by emphasizing participants' positive perceptions, indicating that they see the adoption of new food practices as necessary.

In short, significant challenges arise from negative perceptions, financial and time constraints, and skepticism. On the other hand, there is a clear understanding of the benefits of learning and a willingness to adopt new practices. The last section of findings addressed these challenges through hands-on learning and alternative ways of knowledge transfer, which facilitate the adoption of these innovative practices.

6.2 INTERPRETATION IN RELATION TO THE LITERATURE AND RECOMMENDATIONS

6.2.1 CAPACITY-BUILDING AND TANGIBILITY AS DRIVING THE ADOPTION OF SUSTAINABLE FOOD INNOVATIONS

Two main findings on the factors facilitating the adoption of an innovative food practice will be discussed in more depth here. First, participants directly involved with HFA's initiatives, such as teachers, seem to adopt the new food practices more easily than the participants who are not involved at school. Second, the tangible nature of an innovation like the workshop on leafy vegetables and the school garden increased their potential for adoption and implementation at home.

These findings align with scholars such as Den Boer et al. (2021) and Gamache et al. (2020). Both discussed how capacity building needs to be a part of living labs for food system transformation pathways to be successful. The school gardens demonstrate the positive impact of such capacity-building efforts. The latter empowered students with practical skills and knowledge which in turn fostered a sharing of competencies between children and parents. This has the potential to overcome shortcomings due to the weak communication channels between the school and the parents. Dirkx (1998) emphasize that capacity-building efforts within living labs lead to "transformative learning" which goes beyond simply acquiring new knowledge as it also involves critical reflection (cited in Gamache et al, 2020, p.20).

These arguments suggest that for living labs to provide individuals with the tools they need to fulfill food system transformation and promote sustainable food practices, the innovations need to be capacity-building driven, such as the school gardens and the leafy vegetable workshop. The fact that participants are equipped to implement effectively the new practices enhances the sustainability of the innovations. Frisk & Larson (2011) argue that educational programs should foster a sense of empowerment among participants for them to engage in action. Indeed, knowledge dissemination without capacity-building limits the achievement of sustainable transformation. Therefore, for Cotonou's FSL to create sustainable innovative food practices among participants, it needs to make its educational programs more tangible and focused on capacity building.

1. Make the workshops more concrete and less theoretical. For example, the food should be brought to class, not just presented in pictures on the poster. Students should be invited to touch, smell, engage with the new food products.

2. Incorporate concrete examples of balanced meals into the workshop content, flyers and poster, including products that parents have access to, so that they can integrate this practice at a lower cost.

3. Offer training on gardening to teachers, students and parents to ensure the sustainability of the project.

6.2.2 UNEQUAL KNOWLEDGE ACCESS AS THE PRIMARY CHALLENGE TO ADOPTING INNOVATIVE PRACTICES

Whether due to a lack of time, financial constraints, or inadequate training, these material and competencies barriers converge to a common issue: unequal access to knowledge. This disparity is evident both within the sample and the broader communities. For instance, findings shed light on the unequal involvement of participants in school gardens between Calavi and Sèmè-Kpodji. Participants in Sèmè-Kpodji, equipped with pre-existing gardening skills, were more engaged with the project than those in Calavi, which prompted their willingness to adopt the practice at home. This finding suggests that existing skills within the community should be leveraged to enhance the adoption of new practices instead of depending on knowledge coming from sources outside of the community. Den Boer et al. (2021) articulated questions the researchers or practitioners should ask such as “Who needs to acquire competences to contribute to food system transformation?” (p.120). While these were developed to improve the competencies of professionals

4-Encourage parents already involved in the garden to teach others basic gardening skills

5-Take advantage of parents' meetings to raise awareness on HFA's initiatives' benefits and to facilitate the workshops.

6-Organize parents meetings according to parents' availabilities, with particular attention given to accommodating the schedules of working mother

for successful food system transformation, they are relevant as well for the FSL's beneficiaries. Since participants' pre-existing competencies were pivotal factors for them to engage with the innovations, future initiatives should develop innovations tailored to beneficiaries' existing abilities. By addressing local contexts and beneficiaries' competencies, initiatives can promote participation, improve access to knowledge, and facilitate the adoption of innovations.

Participants had unequal access to learning opportunities on innovative food practices which hindered the ability of non-attendees to acquire the necessary competencies to adopt the innovations at home. This disparity among beneficiaries not only limit innovation adoption within households but also hinders children’s health. In their study, Nagahori et al. (2018) emphasize the critical role of women in ensuring child health through nutrition. Which puts the emphasis on the importance of disseminating information on healthy food practices to mothers.

In line with the concept of innovation readiness, these findings suggest that the current initiatives are only partly fulfilling the intended outcomes of innovation adoption in the household (Schut et al, 2022, p.125). Shut et al. (2022) further argue that evidence suggests various societal groups can face diverse challenges in benefitting from an innovation. Hence, future implementations need to address the discrepancies among participants and community members when offering educational sessions on innovations.

6.2.3 THE IMPERATIVE TO OVERCOME THE MISTRUST BETWEEN COMMUNITY AND SCHOOL-BASED PROGRAMS

In considering the value participants attributed to adopting novel practices, perceptions of the food innovations were negatively influenced by the lack of trust towards school-based programs. Through their research on knowledge transfer, Casprini et al. (2017) discuss how participants have a tendency to dismiss “anything not invented here” (p.1462, cited in Rigg et al., 2021, p.625) which speaks to the rejection of external innovations.

Consequently, trust between the school and the community must be strengthened to address beneficiaries’ skepticism about educational programs that teach new practices. The first step toward achieving this goal is to identify the sources of mistrust. The findings demonstrated that it is rooted in the frustration with previous school-based programs such as the canteens. Therefore, an initial measure involves improving the quality of the school canteen and encouraging parents’ direct involvement in HFA initiatives to improve communication about the benefits of food innovations. More broadly, these findings suggest that future initiatives should ensure innovations are introduced through people or institutions that beneficiaries trust.

7- Strengthen links between the school and the community to reduce the distrust that some parents have of the school. One idea would be to set up a WhatsApp group between parents and teachers to facilitate communication between the two groups.

8-Make parents aware of the importance of contributing to the canteen. This will break a vicious circle. If parents are better informed about their role in the canteen, cooks will have more resources to cook quality meals, which will encourage parents to give more.

While some members of the community attribute negative meaning to learning new practices, a significant portion of the participants gave positive value to adopting novel practices. Although the ability to adopt a food practice needs to be accompanied by beneficiary

acceptance to change, as argued by Siegrist & Hartmann (2020), the findings revealed that this is not sufficient if there is a lack of access to knowledge. Considering all the above-mentioned barriers to accessing information, a main recommendation for future implementation would be to reconsider knowledge sharing methods.

This study recommends peer-to-peer teaching, as participants view it positively and consider it an effective way to disseminate knowledge to those not involved with the school programs. Participants see this strategy as the most effective way to motivate people to adopt innovations since the new practices will be introduced by member of the community, overcoming trust issues and enhancing long-term adoption. The literature on knowledge sharing brings forth similar conclusions. Frisk & Larson (2011) argue that sustainable behaviour requires more than theory, and Rigg et al. (2021) assess that only interventions based on knowledge sharing and “peer exploration” are effective (p.633). In other terms, Rigg et al. (2021) argue that discussing ideas and practices with peers helps to break down barriers between expertise and knowledge.

A practical recommendation for the FSL is to train teachers in gardening skills and workshop facilitation, enabling them to teach other community members. With this knowledge, teachers can extend facilitating skills to parents, creating a snowball effect of knowledge sharing.

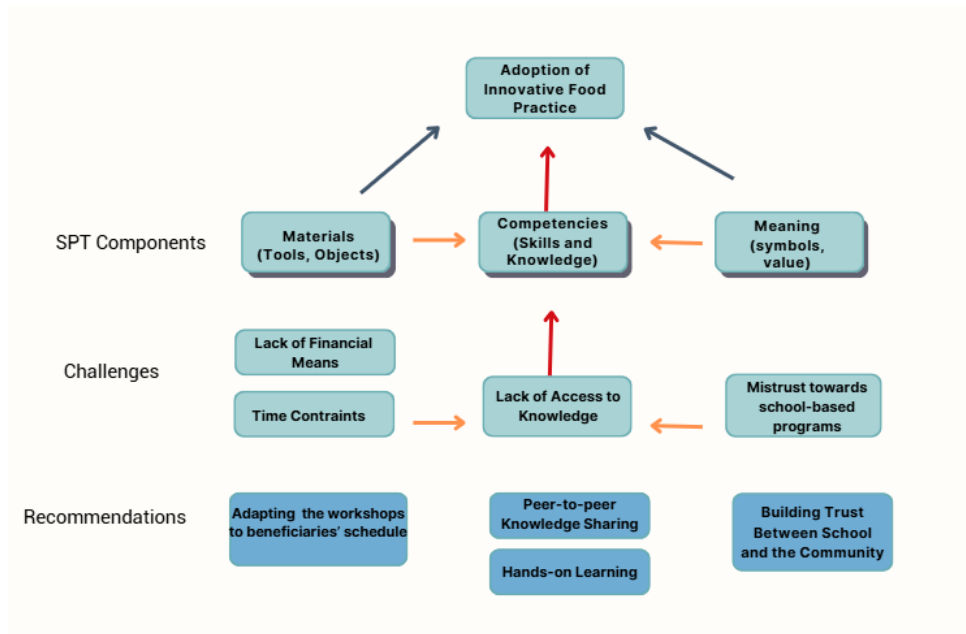
6.3 ENGAGING WITH THE THEORY

Social Practice Theory (SPT) provided a solid framework for this qualitative study, allowing a structured presentation of findings. The theory’s three components facilitated a nuanced understanding of social practices. Scholars such as Shove (2010) insisted on the importance of contextualizing individual behaviours within broader societal contexts, which avoids an oversimplification of the findings. However, the theory lacks concepts to delve into why individuals attribute specific meaning to a practice. Although this shortcoming is addressed by Warde (2005) when he points out that food consumption practices are carried out in different ways by everyone, a more thorough analysis is still missing. Critiques of the theory have also underlined how SPT neglects processes of motivation and affect (Welch, 2017, p.29).

Yet, the core finding of this research is, that the main barriers to practice adoption are the lack of access to knowledge and the resistance to being taught rather than the rejection of novel practices. Therefore, greater emphasis should be placed on certain aspects of SPT such as the meaning beneficiaries attach to learning about new practices. This approach would permit to look beyond solely components of practice in focusing on the barriers to learning and adopting innovations. Such a perspective will be crucial for interpreting findings more effectively in future studies. In line with the key findings, this study suggests exploring new pathways for knowledge transfer. To highlight the significance of these recommendations, the two

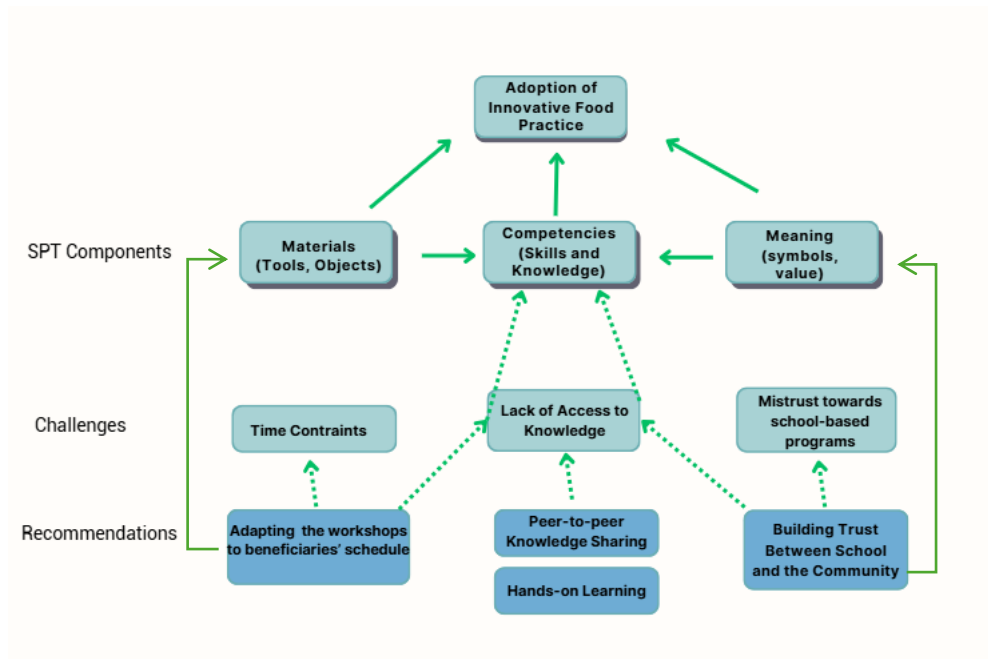
subsequent figures (Figures 11 and 12) visually represent the main challenges participants face in adopting food innovations. They also illustrate the potential impact of the recommendations to overcome these challenges by reestablishing the balance between the three components of SPT.

Figure 11 Impact of the Main challenges on the Capacity to Adopt Innovative Practices



This diagram highlights the three components of SPT based on the main challenges before the recommendations' implementation. It demonstrates how these challenges weakened the connection between the different components, impeding beneficiaries' adoption capacity. The yellow connections show how some challenges aggravate other challenges (Access to Knowledge), so indirectly weakened the adoption. While the red connections show the challenges that weakened the components required to adopt the innovation. The link between meaning and competencies is weakened by mistrust. The link between materials and competencies is weakened by time constraints. Mistrust and time constraints hindered access to knowledge which significantly weakens the acquisition of the necessary competencies to adopt an innovation.

Figure12 Impact of the Main Recommendations on the Capacity to Adopt Innovative Practices



This diagram demonstrates how recommendations strengthen the three components to facilitate beneficiaries' adoption capacity. The green dotted arrows show the impact of recommendations on overcoming the identified challenges which allows for the strengthening of the SPT components. The strengthened connections are shown in green, indicating a new equilibrium where the different components reinforce each other, facilitating the adoption of innovations.

6.4 LIMITATIONS AND AVENUES FOR FUTURE RESEARCH

This study suffers from limitations, which also present opportunities for future research. First, this study limited its scope to one living lab which prevents generalization of the findings. This reduces the depth of the analysis since comparisons with other living labs could have provided nuanced insights, thereby enhancing relevance. Second, in terms of methodology, focus group discussions with parent committee members or other parents could not be carried out because of conflicting schedules among participants. Consequently, the qualitative methods used in this study were limited to one group discussion with key informants, field observations and twenty semi-structured interviews, resulting in a small sample size. The omission of a mixed-method approach impedes this research's ability to generalize findings which weakens

recommendations to practitioners. To gain more diverse insights and a larger sample, future research should incorporate more focus group discussions and quantitative methods such as surveys.

The short-term nature of the field research (three months), made a participatory action research approach unfeasible. Yet, in the context of a FSL which aims at co-creation and empowerment, this approach would be more relevant, especially to integrate non-attendees into FSL initiatives. Adopting this method in future research could enhance engagement and participation.

As for avenues for future research, this study stresses the importance of developing context-specific methodologies to assist households in adopting innovations. Therefore, this research serves as a pilot for the project: “From Lab to Mouth: Enhancing the capacities of households to adopt innovations from living labs in the food sector across Africa” which is part of the Pathways to Sustainability Incubator grant (2024). The incubator project focuses on enhancing households’ capacity to adopt food system innovations from LLs in food system transformation.

7.CONCLUSION

The objective of this thesis is to understand how social practices can evolve to enable the adoption of sustainable and healthier food habits in households, considering the three components of SPT: material, competencies, and meaning. To conclude, it is important to revisit the research questions and assess the extent to which they were answered, by providing additional insights into the key findings and presenting implications for the field.

7.1 REVISITING THE KEY FINDINGS

The specific changes observed in the FSL’s beneficiaries concerning the three different innovative practices (see Table 3) include a rise in the adoption of well-balanced meal practices resulting from greater comprehension of the role of various foods, the modification of cooking practices for leafy vegetables, and the increased consumption of fruits and vegetables at home, directly influenced by practical gardening experience.

These findings demonstrate that more accessible and practical knowledge sharing fosters greater practice adoption. However, these results were evident only among participants who were actively involved with the FSL’s initiatives, highlighting limitations to the innovations’ readiness. Furthermore, analysis through the lens of SPT revealed significant challenges preventing participants’ adoption of food practices. Financial hardship and time constraints were the main materials challenges, while the limited access to knowledge impeded participants’ acquisition of necessary competencies. Moreover, negative attitudes toward

innovative food practices such as perceived irrelevance and mistrust, were driven by participants' perceptions of school-based programs, indicating a need for changes to restore trust between these parties. Finally, as partly answered in the previous section on challenges, some participants negatively perceived the process of learning innovative food practices from school-based programs due to a confidence in their current food practices and skepticism toward the quality of information from these programs. Nevertheless, there was also a genuine willingness among participants to adopt innovative food practices. This positive perception opens avenues to overcome identified adoption barriers.

7.2 ANSWERING THE MAIN RESEARCH QUESTION

With the supporting questions answered, this thesis concludes by answering the main research question that guided this research. The findings indicate that financial means are not the primary barrier to adopting the FSL's proposed food innovations. Instead, the main issues lie in beneficiaries' attitudes towards being taught novel practices and access to knowledge. Thus, the challenges preventing adoption are primarily due to difficulties in acquiring competencies. Therefore, to answer the main research question, the findings suggest that the following elements of social practice needing modification to promote sustainable and healthier food practices are the following; The focus should be on altering the meaning attributed to the teaching methods and improving the competencies required to adopt new practices, rather than merely addressing material constraints. These findings have significant implications for sustainable development and methodologies driven by capacity building. Although the case of Cotonou's FSL focuses on food innovations, the findings highlight the importance of capacity-building initiatives and accessible, empowering methods of knowledge sharing. These approaches can be applied to other innovations aimed at fostering behaviour change for adopting sustainable practices.

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APPENDICES:

Appendix 1: Initial Sub- Questions

- 1-How do participants perceive an innovative food practice with respect to its ability to create more sustainable food consumption practices at a household level?
- 2-What elements of social practice (competencies, meanings and materials) are participants willing or able to change to adopt an innovative food practice at a household level?
- 3-What role does gender play in influencing which innovative food practices are adopted in the household?

The two first questions were slightly adjusted to better align with participants' testimonies and realities. As for the third one, gender has been integrated as a factor across all issues rather than being treated as a standalone topic.

Appendix 2: Interview Guides

[Focus Group Discussion.docx](#)

[Semi-Structured Interview for Teachers.docx](#)

[Semi-Structured Interview for Parents.docx](#)

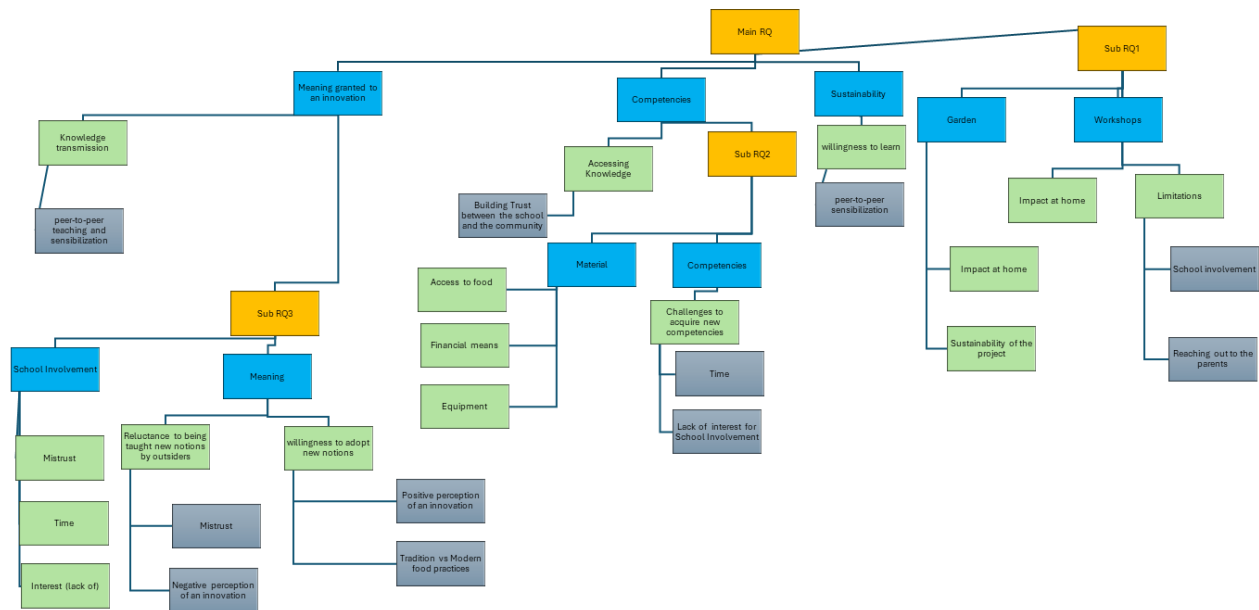
Appendix 3: Code Book

Name	Description
Gender roles	This broad category looks at men and women's perception on who should be in charge of food preparation at home
→Importance cooking skills	of This code captures how men and women value cooking skills for themselves, their spouses and their kids
→importance tradition	of This looks at how men and women value the food practices that were taught by their mothers
→importance transmission	of This looks at how men and women value the transmission of cooking skills to their children
Impacts of Workshops	
→Impact at home	Captures the impacts of the FSL's nutritional workshops on participant's food practices at home, such as incorporating more balanced meals and fruits

Name	Description
→General interest	Captures the overall interest and involvement of participants in the workshops
→Impact of leafy vegetables workshop	Captures the specific level of interest and impacts of this workshops on participants' cooking methods
Impact of the garden	
→Impact at home	Captures the impacts of the FSL's school gardens on participant's food practices at home, such as growing their own garden
→general interest	Captures the overall interest and involvement of participants in the gardens
Perception on Sustainability of initiatives	Captures participants' views and hopes for the long-term viability of the FSL's initiatives
Level of involvement with HFA initiatives	Captures the extent to which participants were taking an active part in the initiatives
Challenges to adoption of novel practices	
→Knowledge	Captures the gaps in participants' knowledge on the novel food practices
→Communication	Captures the lack of communication between the school and the parents
→Money	Captures the participants' view on the lack of financial means preventing them from adopting a novel practice
→Material	Captures participants' view on the specific tools needed to adopt the novel food practice
→Access to food	Captures participants' difficulty to have physical access to certain type of food
→Time	Captures time constraints identified by participants preventing them from adopting an innovative food practice
Reluctance to school involvement	Captures resistance, scepticism of participants to be involved with school-based programs
Reluctance to being taught	Captures resistance, scepticism of participants to be taught new food practices

Name	Description
Reluctance to change	Captures the resistance to adopt a new food practice
→Willingness to change	Captures participants expressed willingness and openness to adopting a new food practice
→Adaptation	Captures participants' views on the importance to adapt to novelties
Solutions to reach out to parents	Captures participants' ideas on different strategies to encourage parents to be more involved at school
→peer-to-peer teaching	Captures specific strategy highlighted by participants to increase the communication and transmission of knowledge between the FSL initiatives and the parents

Appendix 4: Code Tree



Appendix 5: Ethical Review Form

1. Informed Consent

Before conducting any interviews, participants were fully informed about the research topic, its objective, the researcher's identity and how the results will be used. Typically, informed consent consists of a form to be read and signed. Although the form was presented to participants (see Appendix 7), oral consent was used to accommodate each participant's literacy and language barriers.

2. Data protection and anonymity

This research removed all sensitive information from the data collection to ensure anonymity to participants and avoid potential sociocultural harm.

3. Sharing of findings

Given that the methodological approach was collaborative ethnography, findings were shared throughout the whole to ensure that participants were an integrated part of the collaborative process. It contributed to building trust among all stakeholders.

4. Recruitment of participants

Trust being key for collaborative ethnography, it was crucial that participants not only feel at ease but also fully understand what the research process entailed. To facilitate this, key informants who were well-established within the communities acted as gatekeepers.

Appendix 7: Consent Form

[FORMULAIRE DE CONSENTEMENT ÉCLAIRÉ-Entrevue individuelle.docx](#)